REGULATORY OVERVIEW OF RCRA AND UNBURNED CARBON ON FLY ASH

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In 1976, Congress enacted the Resource Conservation and Recovery Act (RCRA) to establish a regulatory framework providing "cradle to grave" management of hazardous wastes. RCRA amended the Solid Waste Disposal Act by adding Subtitle C which imposes obligations on persons who generate, store, transport or dispose of hazardous wastes. Wastes may be classified as hazardous if they fail tests based on their physical and chemical characteristics (toxicity, corrosivity, ignitability, and reactivity) or EPA may "list" a waste as hazardous through the promulgation of regulations. As a result of the Bevill Amendment passed in 1980, Congress exempted from Subtitle C regulation several types of fossil fuel combustion (FFC) wastes pending further study by EPA and a report to Congress. Congress directed EPA to study whether the management of FFC wastes under state nonhazardous waste laws and regulations was adequate or whether the imposition of more stringent (and costly) regulation under Subtitle C was warranted to protect human health and the environment.

In 1988 (several years after the statutory deadline), EPA published a report to Congress addressing FFC wastes but did not complete a regulatory determination. In 1991, a lawsuit was filed against EPA for failure to complete its rulemaking on time. On June 30,1992, EPA entered into a Consent Decree providing a schedule for EPA to complete its rulemaking. The Consent Decree required EPA to first address "large-volume wastes" including fly ash, bottom ash, boiler slag, and flue gas emission control waste from power plants fired by fossil fuels, and then to address all remaining FFC wastes. On August 9, 1993, EPA published its determination for the first category of wastes, concluding that regulation of these wastes under Subtitle C was not warranted and that they should be permanently exempt from hazardous waste regulation. This exemption applies to large-volume FFC wastes generated by utilities and independent power producers but only when the FFC wastes are managed alone. However, most utility operators comanage some or all of their large-volume wastes with low-volume wastes. EPA indicated that further study was necessary to make a determination of whether the "remaining wastes" should be subject to Subtitle C regulation.

In a Report to Congress issued in March of 1999, EPA reported its findings and preliminary regulatory determination relating to the remaining wastes generated from the combustion of coal, oil, natural gas, petroleum coke and mixtures of coal and other fuels. These wastes consist of low-volume ancillary wastes generated by the combustion of fossil fuels and large-volume wastes when such wastes are mixed with or "comanaged" with ancillary wastes. These ancillary wastes include:

- coal pile runoff
- coal mill rejects/pyrites
- boiler blowdown
- cooling tower blowdown
- water treatment sludge
- regeneration waste streams
- air heater and precipitator washwater
- boiler chemical cleaning waste
- laboratory wastes
- wastewater treatment sludge

EPA addressed each of the following eight study factors as required by section 8002(n) of RCRA:

1. The source and volumes of such materials generated per year
2. Present disposal practices
3. Potential danger, if any, to human health or the environment from the disposal of such materials
4. Documented cases in which danger to human health or the environment has been proved
5. Alternatives to current disposal methods
6. The costs of such alternatives
7. The impact of those alternatives on the use of natural resources
8. The current and potential utilization of such materials.

EPA indicated that each year utilities burn roughly 900 million tons of coal to generate electricity which results in the generation of 100 million tons of large volume coal combustion byproducts- FFC waste or coal combustion waste (CCW). EPA estimated that there are approximately 600 FFC waste management units operated at 450 coal-fired utility power plants nationwide, and more than 80 percent of these operations comanage their large and low-volume wastes. The waste management units consist of equal numbers of landfills (for dry wastes) and surface impoundments (for liquid wastes). In addition, these wastes have been used in a variety of "beneficial use" applications such as use in cement and concrete products, construction fills, agricultural uses, waste management applications and mining applications.

EPA reviewed data on comanaged wastes and concluded that they generally are not corrosive, reactive, ignitable or toxic, and there was not any significant environmental or ecological risks posed by current disposal practices. EPA identified six "damage" cases where comanaged wastes had been connected to environmental contamination and damage to wetlands or streams. EPA concluded that state regulation of the FFC waste management units had increased since its 1988 Report to Congress. The majority of states require permits and have authority to require siting controls, liners, leachate collection systems, groundwater monitoring, closure controls, daily cover, and fugitive dust controls. EPA concluded that these regulatory controls have the potential to mitigate risks from comanaged disposal sites, particularly groundwater pathway risks. EPA also observed that utilities had increasingly installed more environmental controls for comanaged waste disposal units. The costs of a risk management alternative that would require comanaged wastes to be managed in units compliant with Subtitle D (requiring composite liners) would be approximately $860 million per year for the utility industry and would reduce net income as a percentage of revenues by approximately two percent at the individual plant level. EPA recognized that such a profit margin reduction "may be considered significant by the individual utility."

Based on its evaluation of the available data and the eight study factors, EPA tentatively concluded:

1. Disposal of comanaged wastes should remain exempt from RCRA Subtitle C;
2. Most beneficial uses should remain exempt from RCRA Subtitle C.; and,
3. EPA should consider whether some of the disposal practices or beneficial uses of comanaged wastes (such as use of FFC wastes for agricultural purposes or as minefill) should be subject to some form of Subtitle C regulation.

EPA was required to publish its final determination by March 10, 2000. Although EPA did not meet this deadline, it is anticipated that EPA will issue its determination in the near future. Industry stakeholders and some states have encouraged EPA not to impose any Subtitle C regulations while various environmental/citizens groups have criticized EPA's March 1999 Report to Congress and urged EPA to issue a regulatory determination subjecting FFC wastes to Subtitle C regulation. A coalition of citizens' groups issued a report on March 2, 2000 entitled "Laid to Waste: The Dirty Secret of Combustion Waste from America's Power Plants" arguing that the past disposal of FFC wastes has created "toxic waste dumps" which pose serious health hazards. The report asserts that the disposal of these wastes at unlined ponds and landfills allows concentrated levels of toxic chemicals such as arsenic, mercury, chromium and cadmium to leach into groundwater and contaminate drinking water which can cause cancer in children and mutations in fish and wildlife. The report argues that state programs are too variable and are applied too unevenly to adequately regulate the problem. The authors urge EPA to regulate FFC wastes under Subtitle C for the same reasons supporting EPA's recent determination to regulate cement kiln dust, another special waste subject to the Bevill Amendment.

The environmental regulation of unburned carbon on fly ash presents somewhat of a paradox. As a result of the installation of emission control technologies to meet increasingly stringent Clean Air Act requirements, more FFC waste may be captured in solid waste streams which must be managed, disposed or beneficially used. The dilemma facing the utility industry is how to satisfy the regulations without creating new disposal problems. Subjecting FFC wastes to Subtitle C regulation and/or limiting the beneficial use of FFC wastes would present new challenges to industry and state agencies which have authorized and sometimes encouraged the beneficial use of FFC wastes. However, environmental groups have countered with arguments that EPA's preliminary determination was flawed and that past and current disposal of FFC wastes pose significant hazards to human health and the environment. Until EPA issues its final determination, FFC wastes remain subject to regulation by states under their solid waste laws.